

48-year-old woman with a suprasellar mass

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January 26, 2012

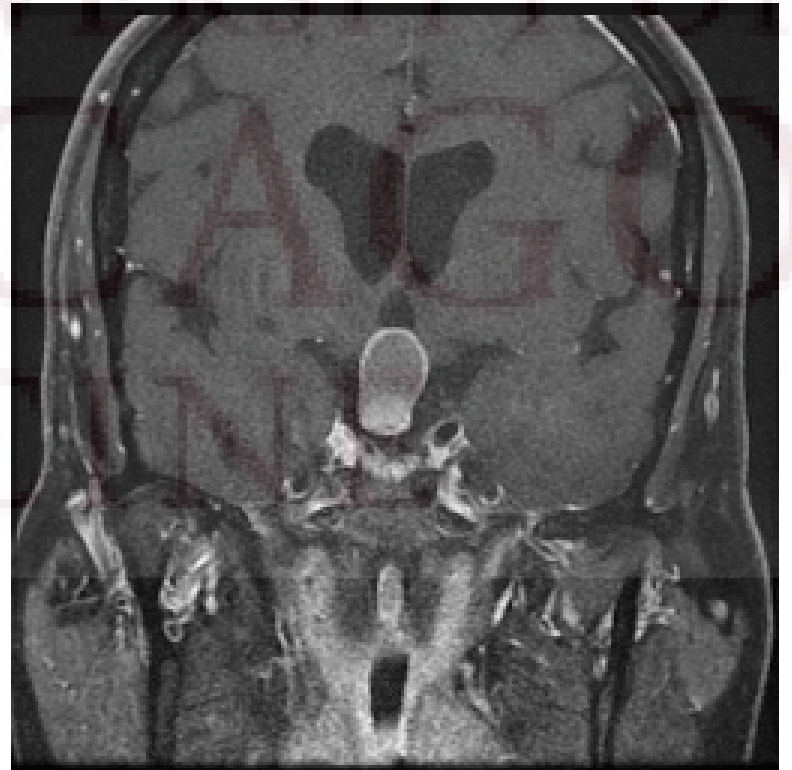
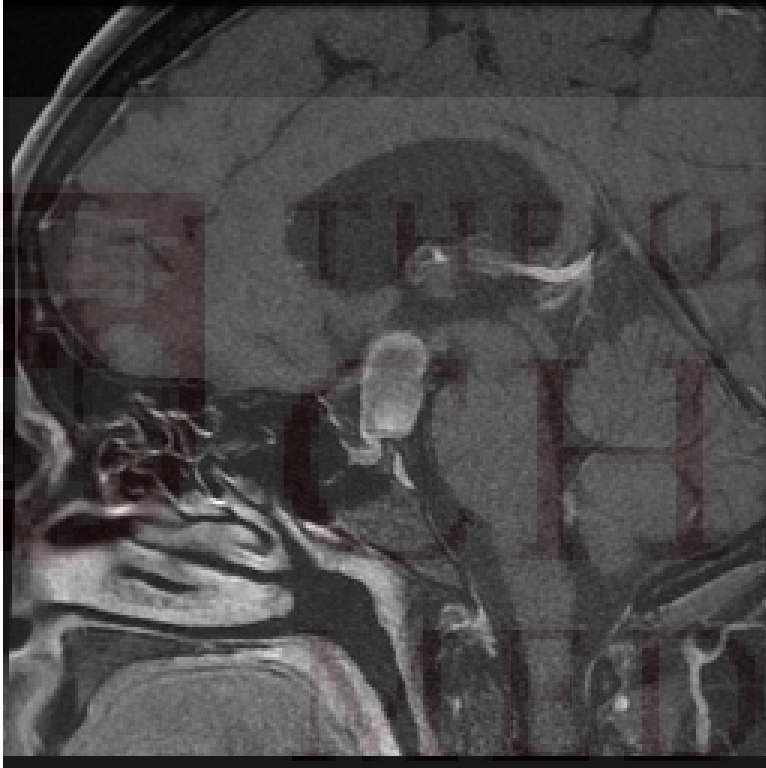
History of Present Illness

- 48-year-old woman
 - Two years ago she noticed the onset of irregular periods and then several months ago developed amenorrhea
 - Seen by obstetrician/gynecologist → no elevation in FSH
 - History of autoimmune hyperthyroidism followed by endocrinology
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HPI continued

- Outpatient pituitary evaluation
 - Prolactin: 37.7 ng/mL (ref range 4.8-23.3)
 - IGF-1 69 ng/mL (ref range 81-225)
 - AM Cortisol 19.8 mcg/dL (ref range 6.8-26)
- MRI Pituitary performed

MR Pituitary



Referred to Neurosurgery

- Review of Systems positive for visual blurring for about 2 years, worse in the right eye and peripheral fields
 - Referred for formal neuroophthalmology consultation and visual fields
 - Repeat prolactin level with dilutions
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History

■ Past Medical History

- Autoimmune hyperthyroidism s/p RAI now hypothyroid
- Hypertension
- Hyperlipidemia

■ Past Surgical History

- Lipoma resection

■ Allergies: NKDA

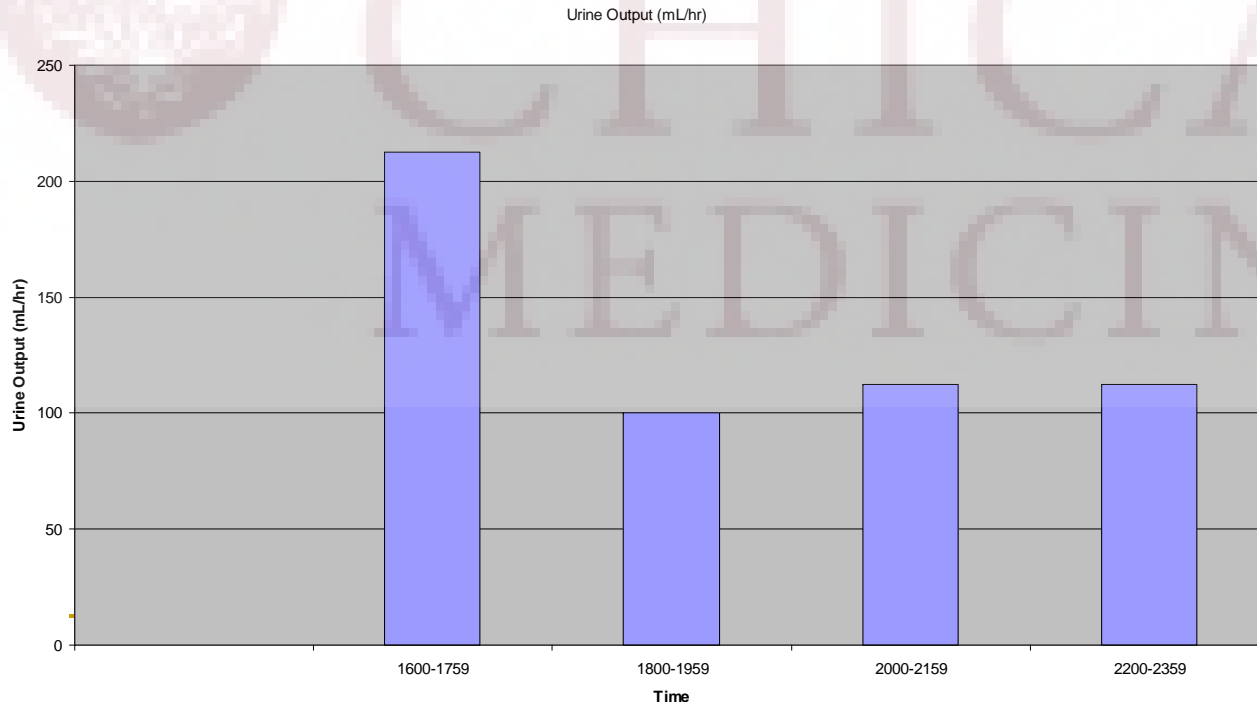
■ Medications

- Synthroid 0.137 mg daily
- Lipitor 10 mg daily
- Atenolol 25 mg daily
- Fish oil

POD #0 – Endocrine Consultation

■ s/p right frontotemporal craniotomy for resection of presumed craniopharyngioma

- Approach chosen given that the normal pituitary gland was splayed inferiorly limiting the ability to resect the cyst wall via the transsphenoidal approach
- Pt complains of thirst



Baseline Labs

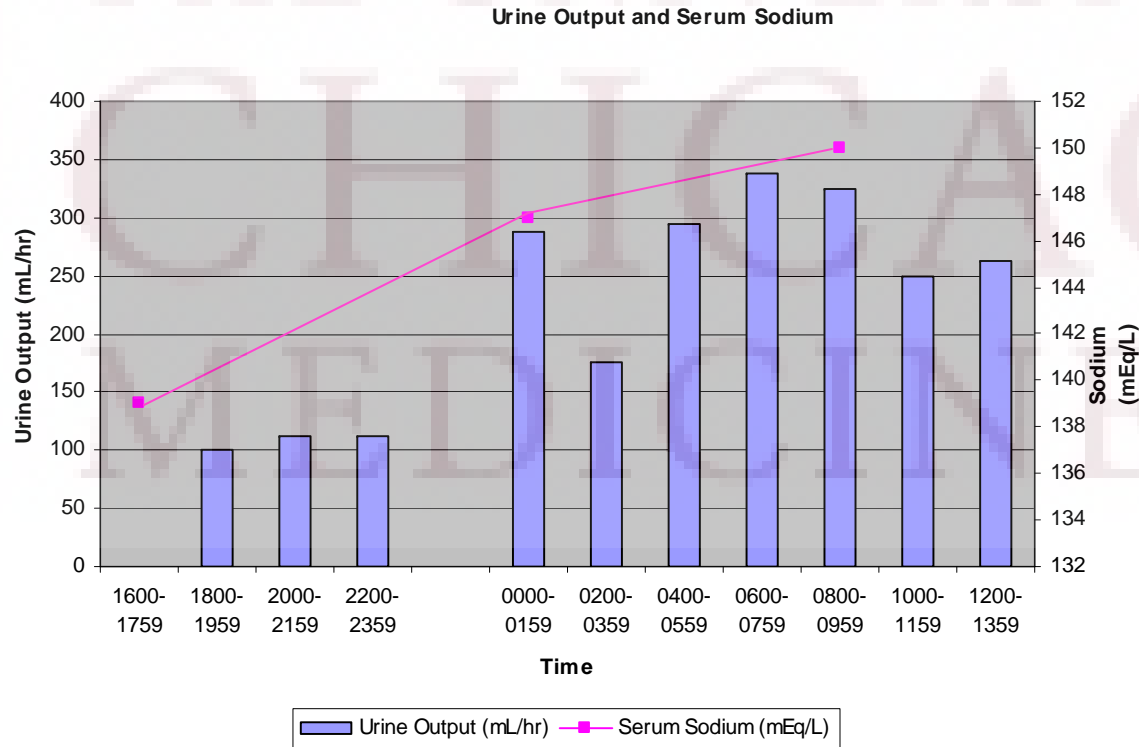
Na = 139 mEq/L

(ref range 134-149)

Urine Specific Gravity = 1.018 (ref range 1.016-1.022)

POD #2

- Pt complains of thirst and lightheadedness, urine in Foley is dilute with a specific gravity of 1.004 (ref range 1.016 – 1.022)
- Urine osmolality at 0207 is 216 mOsm/kg and at 0800 is 138 mOsm/kg
- Random urine sodium at 0207 is 46 mEq/L and at 0800 is 33 mEq/L



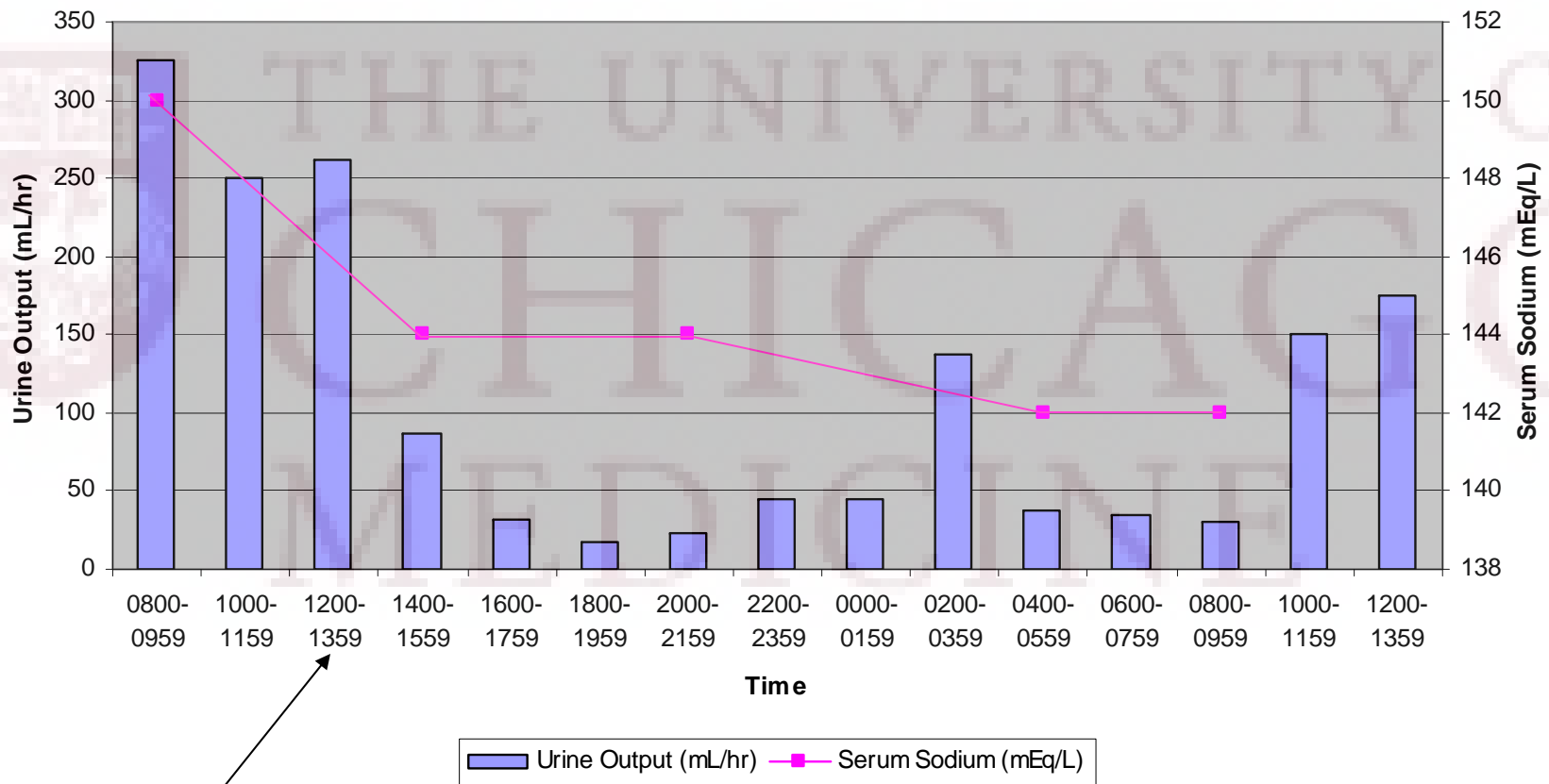
Recommendations

- Administer 1 mcg of DDAVP subcutaneously once, monitor urine output, electrolytes
- Allow patient to drink to thirst
- Use hypotonic fluids, $\frac{1}{2}$ normal saline

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DDAVP administered at 1pm

Urine Output and Serum Sodium



DDAVP administered at 1300

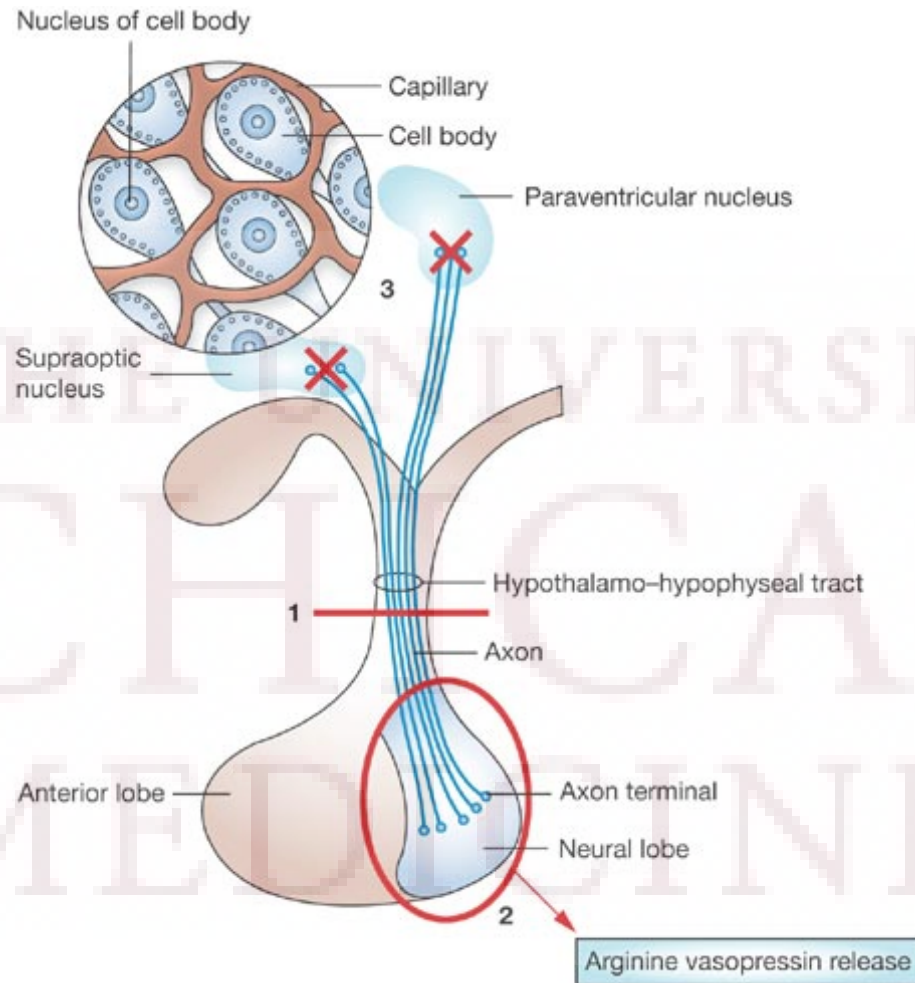
Post-operative Diabetes Insipidus

- Common complication of surgery in the sellar region whether from transnasal or transcranial approach
- Risk Factors
 - ❑ Young age
 - ❑ Male sex
 - ❑ Large intrasellar mass
 - ❑ CSF leak

Course of Post-operative DI

■ Transient – most cases

- Begins within 24-48 hours of surgery
- Thought secondary to temporary dysfunction of AVP-producing neurons
 - Trauma to the connections between the cell bodies and the nerve terminals in the posterior pituitary
 - Axonal shock from trauma to the vascular supply to the pituitary stalk and posterior pituitary
- Abates within several days when AVP secreting neurons recover their normal function



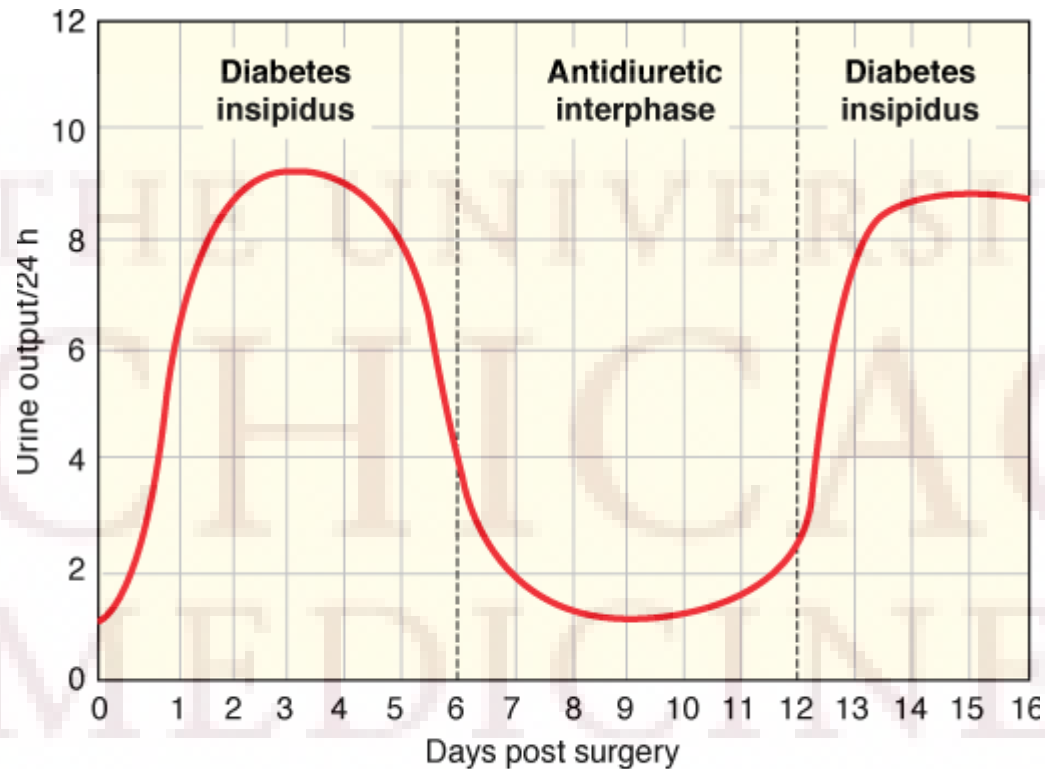
Loh JA and Verbalis JG (2007) Diabetes insipidus as a complication after pituitary surgery
Nat Clin Pract Endocrinol Metab **3**: 489–494 doi:10.1038/ncpendmet0513

Course of Post-operative DI

■ Triphasic

- Initial phase similar to transient DI with same presumed etiology of axonal injury
- Second phase of inappropriate antidiuresis caused by uncontrolled release of AVP into the bloodstream from the degenerating nerve terminals in the posterior pituitary
 - Lasts up to several weeks
 - Can be followed by recovery or third phase
- Third phase
 - After the AVP stored in the posterior pituitary gland has been released, third phase develops if >80-90% of AVP-secreting neuronal cell bodies in the hypothalamus have degenerated

Triphasic Response



Source: Gardner DG, Shoback D: *Greenspan's Basic & Clinical Endocrinology*, 9th Edition: www.accessmedicine.com
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Our patient

- Urine output began to increase within 24 hours of first dose of DDAVP
 - Started intranasal DDAVP for as needed use
 - Pt to follow-up with her endocrinologist

References

- Greenspan's Basic and Clinical Endocrinology
- Oxford Textbook of Endocrinology and Diabetes
- Loh, J. Diabetes insipidus as a complication of pituitary surgery. *Nature Clinical Practice Endocrinology and Metabolism*. June 2007: 489-494
- Hensen J. Prevalence, predictors and patterns of postoperative polyuria and hyponatremia in the immediate course after transsphenoidal surgery for pituitary adenomas. *Clinical Endocrinology* 1999 50: 431-439